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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,330	07/31/2003	Andrew Collins	3041.EEM	3608
7590 05/04/2004			EXAMINER	
Charles W. Almer 10 Finderne Avenue Bridgewater, NJ 08807			DUONG, THO V	
			ART UNIT	PAPER NUMBER
			3743	

DATE MAILED: 05/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/632,330	COLLINS ET AL.	
	Examiner	Art Unit	
	Tho v Duong	3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/25/2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

Applicant is required to provide a drawing for the understanding of the subject matter sought to be patent. (MPEP 601.01 (f). The claimed subject matter of "a heat generating component, a cold sink and the thermal interface material" and "a pressure sensitive adhesive" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As regarding claim 12, the claimed subject matter that the composition further comprising a pressure sensitive adhesive, renders the scope of the claim indefinite since a pressure sensitive adhesive is a physical layer which can not be a part of a material composition.

Claim 13 recites the limitation "the thermal interface material" in line 2. There is insufficient antecedent basis for this limitation in the claim.

In view of the clarity issue above, the examiner has not been able to determine whether claim 12 is new or inventive and will do so at amendment.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,7 and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Marhevka et al. (US 5,712,039). Marhevka discloses (column 7, lines 17-20 and column 8, lines 6-62) a thermally composition comprising a combination of nitrile rubber, carboxyl-terminated butadiene group and carboxyl-terminated butadiene nitrile; a thermal conductive particles such as carbon black; and an additives such as reinforcement materials. Marhevka further discloses (column 9, line 37- column 10, line 44) that the thermally composition is an epoxy resin adhesive which used to bond two surface. Therefore, the adhesive can be any one of the forms of paste, supported or free-standing film. As regarding claim 2, the method of forming the device “the composition is formed via hot melt extrusion” is not germane to the issue of patentability of the device itself. (MPEP 2114) Therefore, this limitation has not been given patentable weight. In this case, regardless of how the composition is made, the composition as shown in prior art is the same with the composition as claimed. As regarding claim 1, the recitation “for transferring heat from a heat generating component to a cold sink” has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa V. Robie*, 88 USPQ 478 (CCPA 1951).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-6 and 8 are rejected under 35 U.S.C. 103(a) as obvious over Marhevka et al. Marhevka substantially discloses all of applicant's claimed invention as discussed above except for the volume percentage of the nitrile rubber, carboxyl-terminated butadiene/nitrile groups and the weigh percentage of the thermal conductive particles. Marhevka further discloses (column 8, lines 19-62) that each ingredients of the composition can be added in amount effective for the intended purpose and to enhance the properties of the cured epoxy adhesive. Applicant has not disclosed that having such claimed volume and weight percentages is for any particular purpose or any criticality that having such percentage would provide any advantage over other range of percentage. Applicant discloses only in the specification that the claimed range is "preferably" chosen. However, "preferably" means that other percentage, which is different than the claimed percentage, is still applicable and feasible. Accordingly, the use of claimed percentage is deemed to be a design consideration, which fails to patentably distinguish over the prior art of Marhevka.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eguchi et al. (US 6,627,997) in view of Marhevka (US 5,712,039). Eguchi discloses (figures 1,5 and column 6, lines 34-40) an electronic device comprising a heat generating component (1), a cold sink (4) and a thermal interface material (5) wherein the thermal interface material is a resin adhesive that

Art Unit: 3743

includes a resin, thermally conductive and toughening agent such as nitrile-butadiene rubber incorporated therein. Eguchi does not disclose that the toughening agent is a combination of nitrile rubber and carboxyl-terminated butadiene. Marhevka discloses (column 8, lines 6-18) an epoxy resin adhesive that has toughening agents of a combination of nitrile rubber and carboxyl-terminate butadiene group incorporated therein for the purpose of enhancing the properties of the cured epoxy resin adhesive. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Marhevka's teaching in Eguchi's device for the purpose of enhancing the properties of the cured epoxy resin adhesive.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Weidenbenner et al. (US 3,972,821) discloses a heat transfer composition consisting of an epoxy resin, nitrile rubber and heat transfer filler.

Masayuki (US 6,660,566) discloses a heat conductive molded body.

Canning et al. (US 5,783,465) discloses a compliant bump including nitrile rubber.

Oosedo et al. (US 6,063,839) discloses a material comprising prepreg of reinforcing fibers and epoxy resin.

Tseng et al. (US 5,807,910) discloses a nitrile rubber with filler.

Buckley (US 6,464,672) discloses a multiplayer composite material.

Blank et al. (US 6,015,865) discloses a hot melt adhesive from epoxy resin and rubber.

Art Unit: 3743

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tho Duong whose telephone number is (703) 305-0768. The examiner can normally be reached on from 9:30-6 PM.

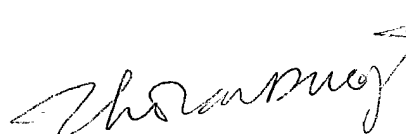
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet, can be reached on (703) 308-0101. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.



TD

April 30, 2004



Tho Duong

Patent Examiner.